Contract No.
14-05-0001-370
10/21/68

OPERATING AGREEMENT

executed by

THE UNITED STATES OF AMERICA

acting by and through the

SAVANNAH DISTRICT, CORPS OF ENGINEERS

and the

SOUTHEASTERN POWER ADMINISTRATION

and

DUKE POWER COMPANY

0.1 THIS OPERATING AGREEMENT, executed as of October 1, 1968, between the UNITED STATES OF AMERICA (hereinafter called the Government), acting by and through the SAVANNAH DISTRICT ENGINEER (hereinafter called the District Engineer), and the SOUTHEASTERN POWER ADMINISTRATOR (hereinafter called the Administrator), and DUKE POWER COMPANY (hereinafter called the Company), a corporation organized and existing under the laws of the State of North Carolina;

0.2 WHEREAS the Company pursuant to a license issued by the Federal Power Commission has under construction on certain tributaries of the Savannah River a project known as the Keowee-Toxaway hydroelectric project, designated as Project No. 2503 (hereinafter called the Keowee-Toxaway Project); and

0.3 WHEREAS the Keowee-Toxaway Project is composed of two adjoining developments, the most downstream of which is called the Keowee Development, a conventional project, and the other the Jocassee Development, a combination pump-storage project; and

0.4 WHEREAS the Government has two existing reservoir projects on the Savannah River downstream of the Keowee-Toxaway Project known as the Clark Hill and Hartwell projects, respectively, which are operated and maintained by the District Engineer and from which the Administrator markets the available power and energy; and

0.5 WHEREAS Article 32 of the license for the Keowee-Toxaway Project requires the Company to enter into an agreement with an authorized representative of the Chief of Engineers, Department of the Army, and an authorized representative of the Department of the Interior, assuring that the Company's project will be operated so that the capability of the downstream Federal projects to meet power generating requirements will not be impaired, and further recognizing the requirement for releases from Clark Hill Reservoir (the most downstream reservoir) for low flow control and other responsibilities in connection with the Hartwell and Clark Hill reservoirs, including flood control; and

0.6 WHEREAS the District Engineer and the Administrator have been authorized as representatives of the Departments of the

Army and Interior, respectively, to enter into the said agreement with the Company; and

0.7 WHEREAS the parties hereto desire to enter into an agreement consistent with the requirements of Article 32 of the license together with related Articles 13, 33 and 34;

NOW, THEREFORE, the parties hereto mutually covenant and agree as follows:

Section 1. Principle of Operation of Keowee-Toxaway Project in Conjunction with the Downstream Federal Projects.

1.1 The principle of equalizing the percentage use at any time of combined usable storage capacity (space) in the Company's Keowee and Jocassee reservoirs with the percentage use at any time of combined usable storage capacity in the Federal Clark Hill and Hartwell reservoirs will be followed to determine the minimum weekly release from the Keowee Development.

1.2 For purposes of this agreement, the usable storage capacity in the respective projects is as shown on Exhibit 1, attached hereto and by reference made a part hereof, and is described as follows:

(a) Jocassee Development. The volume between elevation 1086 and the curve denoting top-of-power pool.

(b) Keowee Development. The volume between elevation 778 and the curve denoting top-of-power pool. Elevation 300

(c) Hartwell Project. The volume between elevation 625 and curve denoting top-of-power pool and minimum flood control pool.

(d) Clark Hill Project. The volume between elevation 312 and curve denoting top-of-power pool and minimum flood control pool.

1.3 For purposes of this agreement, use /of storage/ at any time is the water in storage in the usable storage space of each reservoir as described in subsection 1.2 plus the volume reserved for pumping (initially 41,000 acre-feet).

Section 2. Determination of Minimum Weekly Release from Keowee Development.

2.1 The minimum weekly releases from the Keowee Development will be determined by the District Engineer, with the concurrence of the other parties. The release for a particular week will be computed during the preceding week and will be determined utilizing projected quantities of water in storage at each project for Friday midnight next preceding the week for which the minimum releases are computed.

2.2 Whenever the combined use of storage capacity at Clark Hill and Hartwell is projected to be 90 percent or above at

Friday midnight, there shall be no required release at Keowee during the following week.

2.3 Whenever the combined use of storage capacity at Clark Hill and Hartwell is projected to be between 90 percent and 80 percent at Friday midnight, the release at Keowee during the following week shall be determined such that at the end of such week the combined use of storage capacity at Keowee and Jocassee will be twice as many percentage points below 100 percent as the combined use of storage capacity at Clark Hill and Hartwell was below 90 percent on the previous Friday midnight, assuming inflow to Keowee and Jocassee to be 5,000 acre-feet during the week.

2.4 Whenever the combined use of storage capacity at Clark Hill and Hartwell is projected to be less than 80 percent at Friday midnight, the release at Keowee during the following week shall be determined such that at the end of such week the combined use of storage capacity at Keowee and Jocassee will be the same percentage as the combined use of storage capacity at Clark Hill and Hartwell was on the previous Friday midnight, assuming inflow to Keowee and Jocassee to be 5,000 acre-feet during the week.

2.5 Notwithstanding the minimum release requirements determined in subsections 2.3 and 2.4, the release required in any week from the Keowee Development will not exceed 25,000 acre-feet.

2.6 The provisions of subsections 2.1 through 2.5 to the contrary notwithstanding, and irrespective of the combined quantities of water in storage at Clark Hill and Hartwell projects, the release of water from the Keowee Development for the period February through May of each year shall be that release which will result from an operation of Keowee at its normal maximum capability for 120 hours of generation during the four-month period, or such lesser number of hours as may be mutually agreed upon. The release so determined may be increased by the Company to protect the integrity of the Company's system or to prevent the Keowee and Jocassee reservoirs from exceeding their respective rule curves.

Section 3. Operation of Keowee-Toxaway Project during Floods and for Navigation.

3.1 The Company will operate its project reservoirs during flood periods so as not to cause peak discharges downstream greater than those which would have occurred in the absence of the Company's project, except due to Acts of God. This operation shall be in accordance with a plan of operation presented by the Company, approved by the Corps of Engineers and incorporated in the Savannah River Reservoir Regulation Manual. During flood periods close cooperation between the Company and the District Engineer will be exercised.

3.2 The Company shall release water from the project at such rate or such volume as the Secretary of the Army may prescribe in the interest of navigation as provided in Article 13 of the Company's license for the Keowee-Toxaway Project.

Section 4. Exchange of Information.

4.1 The parties hereto will exchange information on current and proposed water releases, pool elevations and other operating conditions pertinent to the operation of the projects for the purpose of carrying out the provisions of this operating agreement. Such information concerning the Company's projects as is required by the District Engineer will be furnished by the Company by telephone on Wednesday of each week.

Section 5. Term of Agreement.

5.1 This agreement shall be revised or terminated upon mutual agreement of the parties.

Section 6. Filing of Agreement.

6.1 A copy of this operating agreement shall be filed with the Federal Power Commission.

IN WITNESS WHEREOF, the parties hereto have caused this agreement to be executed in several counterparts as of the day and year first above written.

UNITED STATES OF AMERICA

Department of the Army

By _____
District Engineer
Corps of Engineers
Savannah, Georgia 31402

Department of the Interior

By _____
Administrator
Southeastern Power Administration
Elberton, Georgia 30635

DUKE POWER COMPANY

(SEAL)

ATTEST:

By _____
Executive Vice President, Power Operations
Charlotte, North Carolina 28201

_____
Secretary

UNITED STATES
DEPARTMENT OF THE INTERIOR
SOUTHEASTERN POWER ADMINISTRATION
ELBERTON, GEORGIA 30635

AS
PB

JUL 29 1968

District Engineer
U. S. Army Engineer District, Savannah
Corps of Engineers
P. O. Box 889
Savannah, Georgia 31402

Attention: Mr. Clarke L. Carter
Chief, Hydraulic Studies Section

Dear Sir:

Attached hereto is a revision of the proposed Operating Agreement for the Clark Hill, Hartwell, Keowee, and Jocassee projects, as discussed by telephone with Mr. Carter by Mr. Rucker on July 19, 1968. Also attached are two sample computations for the determination of the minimum Keowee release for two conditions at the Clark Hill and Hartwell projects.

Sincerely yours,

T. H. Wigglesworth
Chief, Division of Power
Operations

Attachments 3
(in duplicate)

MINIMUM RELEASE

Minimum weekly release from the licensee's Keowee project will be based on the principle of equalizing the percentage use of combined usable storage in the licensee's Keowee and Jocassee reservoirs with the percentage use of combined usable storage in the Corps' Clark Hill and Hartwell reservoirs.

For purposes of this contract, usable storage is defined as follows:

Jocassee

Volume at any time between elevation 1086 and curve denoting top-of-power pool and minimum flood control pool, attached hereto and by reference made a part hereof.

Keowee

Volume at any time between elevation 778 and curve denoting top-of-power pool and minimum flood control pool, attached hereto and by reference made a part hereof.

Hartwell

Volume at any time between elevation 625 and curve denoting top-of-power pool and minimum flood control pool, attached hereto and by reference made a part hereof.

Clark Hill

Volume at any time between elevation 312 and curve denoting top-of-power pool and minimum flood control pool, attached hereto and by reference made a part hereof.

For purposes of this contract, storage at any time is the water in storage in the usable storage space as defined above—except that the storage determined for Jocassee shall be increased by the volume reserved for pumping (41,000 acre-ft.).

DETERMINATION OF MINIMUM WEEKLY RELEASE AT THE KEOWEE PROJECT

Determination of minimum weekly releases at the Keowee project for the ensuing week will be based upon the projected Friday midnight elevation for each project for the current week.

Clark Hill and Hartwell Combined Storage in Excess of 90 Percent of their Combined Usable Storage

Zero minimum Keowee release for the ensuing week.

Clark Hill and Hartwell Combined Storage between 80 and 90 Percent of their Combined Usable Storage

The percentage of the Clark Hill and Hartwell combined storage will be increased by the percent their combined storage is above 80 percent. If the percent so determined is less than the actual percentage of the Keowee and Jocassee combined storage, the difference in this determined percentage of Clark Hill and Hartwell combined storage and the percent of the Keowee and Jocassee combined storage multiplied by the combined usable storage at Keowee and Jocassee increased by 5,000 acre-ft. is the minimum Keowee release for the ensuing week.

Clark Hill and Hartwell Combined Storage Less than 80 Percent of their Combined Usable Storage

If the percent of Clark Hill and Hartwell combined storage is less than the percent of Keowee and Jocassee combined storage, the difference in the percent of the Clark Hill and Hartwell combined storage and the percent of the Keowee and Jocassee combined storage multiplied by the combined usable storage at Keowee and Jocassee increased by 5,000 acre-ft. is the minimum Keowee release for the ensuing week.

Notwithstanding the quantities determined above, the maximum release required in any week from the Keowee project will be 25,000 acre-ft. If at any time the percent of Clark Hill and Hartwell combined storage is greater than the percent of Keowee and Jocassee combined storage, the minimum Keowee release for the ensuing week will be zero.

EXCHANGE OF INFORMATION

The parties hereto will exchange information on current and proposed water releases, pool elevations, and other operating conditions pertaining to the operation of the projects from time to time when requested by other parties to this agreement for the purpose of carrying out the provisions of this Operating Agreement.

COMPUTATION FOR DETERMINATION
OF MINIMUM KEOWEE RELEASE WITH
CLARK HILL AND HARTWELL COMBINED STORAGE BETWEEN
80 AND 90 PERCENT OF THEIR COMBINED USABLE STORAGE
DATE OF COMPUTATION

	Dead Storage	Usable Storage: Permissible Elevation	Usable Storage: Contents	Usable Storage: Usable Storage	Storage: Actual Elevation	Storage: Contents	Storage: Storage
Clark Hill	1,465	327.0	2,300	835	325.0	2,165	700
Hartwell	1,134	657.0	2,386	1,252	653.0	2,182	1,048
Totals				2,087			1,748
Percent Actual Storage		1,748/2,087 = 83.8					
Increased Percent Storage		83.8 + 3.8 = 87.6%					
Keowee	605	797.0	900	295	797.0	900	295
Jocassee	986	1107.0	1,138	152	1100.0	1,086	100
Totals				447			395
Plus Storage for Pumping							41
Total Storage							436
Percent Actual Storage		436/447 = 97.5					

Percent Required Release	97.5 - 87.6	= 9.9
Volume Required Release	9.9% x 447,000 AF	= 44,300 AF
Plus Inflow		5,000 AF
Total Computed Required Release		49,300 AF
Maximum Weekly Required Release		25,000 AF
Required Release		25,000 AF

SAMPLE COMPUTATION FOR DETERMINATION
OF MINIMUM KEOWEE RELEASE WITH
CLARK HILL AND HARTWELL COMBINED STORAGE BELOW
80 PERCENT OF THEIR COMBINED USABLE STORAGE
ASSUMED DATE OF COMPUTATION - AUGUST 1

		Usable Storage			Storage		
	Dead Storage	Permissible Elevation	Contents	Usable Storage	Actual Elevation	Contents	Storage
Clark Hill	1,465	330.0	2,510	1,045	325.0	2,165	700
Hartwell	1,134	660.0	2,550	1,416	653.0	2,182	1,048
Totals				2,461			1,748
Percent Actual Storage		1,748/2,461 = 71.0%					
Keowee	605	800.0	956	351	794.0	849	244
Jocassee	986	1110.0	1,160	174	1100.0	1,086	100
Totals				525			344
Plus Storage for Pumping							41
Total Storage							385
Percent Actual Storage		385/525 = 73.3					

Percent Required Release	73.3 - 71.0 = 2.3
Volume Required Release	2.3% x 525,000 AF = 12,100 AF
Plus Inflow	5,000 AF
Total Computed Required Release	17,100 AF
Maximum Weekly Required Release	25,000 AF
Required Release	17,100 AF

96-100

DUKE POWER COMPANY

KEOWEE RULE CURVE

	JANUARY		FEBRUARY		MARCH		APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER		OCTOBER		NOVEMBER		DECEMBER	
	NOM	FT	NOM	FT	NOM	FT	NOM	FT	NOM	FT	NOM	FT	NOM	FT	NOM	FT	NOM	FT	NOM	FT	NOM	FT	NOM	FT
1	96.0	796.0	96.8	796.8	97.5	797.5	98.3	798.3	99.0	799.0	99.0	799.0	99.0	799.0	99.0	799.0	99.0	799.0	99.0	799.0	98.3	798.3	97.2	797.2
2	96.1	796.1	96.8	796.8	97.6	797.6	98.3	798.3	99.0	799.0	99.0	799.0	99.0	799.0	99.0	799.0	99.0	799.0	99.0	799.0	98.3	798.3	97.1	797.1
3	96.1	796.1	96.9	796.9	97.6	797.6	98.3	798.3	99.0	799.0	99.0	799.0	99.0	799.0	99.0	799.0	99.0	799.0	99.0	799.0	98.3	798.3	97.1	797.1
4	96.1	796.1	96.9	796.9	97.6	797.6	98.4	798.4	99.0	799.0	99.0	799.0	99.0	799.0	99.0	799.0	99.0	799.0	99.0	799.0	98.2	798.2	97.1	797.1
5	96.1	796.1	96.9	796.9	97.6	797.6	98.4	798.4	99.0	799.0	99.0	799.0	99.0	799.0	99.0	799.0	99.0	799.0	99.0	799.0	98.2	798.2	97.0	797.0
6	96.2	796.2	96.9	796.9	97.6	797.6	98.4	798.4	99.0	799.0	99.0	799.0	99.0	799.0	99.0	799.0	99.0	799.0	99.0	799.0	98.1	798.1	97.0	797.0
7	96.2	796.2	97.0	797.0	97.7	797.7	98.4	798.4	99.0	799.0	99.0	799.0	99.0	799.0	99.0	799.0	99.0	799.0	99.0	799.0	98.1	798.1	96.9	796.9
8	96.2	796.2	97.0	797.0	97.7	797.7	98.5	798.5	99.0	799.0	99.0	799.0	99.0	799.0	99.0	799.0	99.0	799.0	99.0	799.0	98.1	798.1	96.9	796.9
9	96.2	796.2	97.0	797.0	97.7	797.7	98.5	798.5	99.0	799.0	99.0	799.0	99.0	799.0	99.0	799.0	99.0	799.0	99.0	799.0	98.0	798.0	96.9	796.9
10	96.3	796.3	97.0	797.0	97.7	797.7	98.5	798.5	99.0	799.0	99.0	799.0	99.0	799.0	99.0	799.0	99.0	799.0	99.0	799.0	98.0	798.0	96.8	796.8
11	96.3	796.3	97.1	797.1	97.8	797.8	98.5	798.5	99.0	799.0	99.0	799.0	99.0	799.0	99.0	799.0	99.0	799.0	99.0	799.0	98.0	798.0	96.8	796.8
12	96.3	796.3	97.1	797.1	97.8	797.8	98.6	798.6	99.0	799.0	99.0	799.0	99.0	799.0	99.0	799.0	99.0	799.0	99.0	799.0	97.9	797.9	96.7	796.7
13	96.3	796.3	97.1	797.1	97.8	797.8	98.6	798.6	99.0	799.0	99.0	799.0	99.0	799.0	99.0	799.0	99.0	799.0	99.0	799.0	97.9	797.9	96.7	796.7
14	96.3	796.3	97.1	797.1	97.8	797.8	98.6	798.6	99.0	799.0	99.0	799.0	99.0	799.0	99.0	799.0	99.0	799.0	99.0	799.0	97.8	797.8	96.7	796.7
15	96.4	796.4	97.2	797.2	97.9	797.9	98.6	798.6	99.0	799.0	99.0	799.0	99.0	799.0	99.0	799.0	99.0	799.0	99.0	799.0	97.8	797.8	96.6	796.6
16	96.4	796.4	97.2	797.2	97.9	797.9	98.7	798.7	99.0	799.0	99.0	799.0	99.0	799.0	99.0	799.0	99.0	799.0	99.0	799.0	97.8	797.8	96.6	796.6
17	96.4	796.4	97.2	797.2	97.9	797.9	98.7	798.7	99.0	799.0	99.0	799.0	99.0	799.0	99.0	799.0	99.0	799.0	98.9	798.9	97.7	797.7	96.6	796.6
18	96.5	796.5	97.2	797.2	97.9	797.9	98.7	798.7	99.0	799.0	99.0	799.0	99.0	799.0	99.0	799.0	99.0	799.0	98.9	798.9	97.7	797.7	96.5	796.5
19	96.5	796.5	97.3	797.3	98.0	798.0	98.7	798.7	99.0	799.0	99.0	799.0	99.0	799.0	99.0	799.0	99.0	799.0	98.8	798.8	97.6	797.6	96.5	796.5
20	96.5	796.5	97.3	797.3	98.0	798.0	98.8	798.8	99.0	799.0	99.0	799.0	99.0	799.0	99.0	799.0	99.0	799.0	98.8	798.8	97.6	797.6	96.4	796.4
21	96.6	796.6	97.3	797.3	98.0	798.0	98.8	798.8	99.0	799.0	99.0	799.0	99.0	799.0	99.0	799.0	99.0	799.0	98.8	798.8	97.6	797.6	96.4	796.4
22	96.6	796.6	97.3	797.3	98.0	798.0	98.8	798.8	99.0	799.0	99.0	799.0	99.0	799.0	99.0	799.0	99.0	799.0	98.7	798.7	97.5	797.5	96.4	796.4
23	96.6	796.6	97.4	797.4	98.1	798.1	98.8	798.8	99.0	799.0	99.0	799.0	99.0	799.0	99.0	799.0	99.0	799.0	98.7	798.7	97.5	797.5	96.3	796.3
24	96.6	796.6	97.4	797.4	98.1	798.1	98.9	798.9	99.0	799.0	99.0	799.0	99.0	799.0	99.0	799.0	99.0	799.0	98.7	798.7	97.4	797.4	96.3	796.3
25	96.7	796.7	97.4	797.4	98.1	798.1	98.9	798.9	99.0	799.0	99.0	799.0	99.0	799.0	99.0	799.0	99.0	799.0	98.6	798.6	97.4	797.4	96.2	796.2
26	96.7	796.7	97.4	797.4	98.1	798.1	98.9	798.9	99.0	799.0	99.0	799.0	99.0	799.0	99.0	799.0	99.0	799.0	98.6	798.6	97.4	797.4	96.2	796.2
27	96.7	796.7	97.5	797.5	98.2	798.2	98.9	798.9	99.0	799.0	99.0	799.0	99.0	799.0	99.0	799.0	99.0	799.0	98.5	798.5	97.3	797.3	96.2	796.2
28	96.7	796.7	97.5	797.5	98.2	798.2	99.0	799.0	99.0	799.0	99.0	799.0	99.0	799.0	99.0	799.0	99.0	799.0	98.5	798.5	97.3	797.3	96.1	796.1
29	96.7	796.7			98.2	798.2	99.0	799.0	99.0	799.0	99.0	799.0	99.0	799.0	99.0	799.0	99.0	799.0	98.5	798.5	97.3	797.3	96.1	796.1
30	96.8	796.8			98.2	798.2	99.0	799.0	99.0	799.0	99.0	799.0	99.0	799.0	99.0	799.0	99.0	799.0	98.4	798.4	97.2	797.2	96.0	796.0
31	96.8	796.8			98.3	798.3			99.0	799.0			99.0	799.0	99.0	799.0			98.4	798.4			96.0	796.0

NOMINAL = GAUGE

FEET = ELEVATION

1090-1110

DUKE POWER COMPANY
JOCASSEE RULE CURVE

	JANUARY		FEBRUARY		MARCH		APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER		OCTOBER		NOVEMBER		DECEMBER	
	NOM	FT	NOM	FT	NOM	FT	NOM	FT	NOM	FT	NOM	FT	NOM	FT	NOM	FT	NOM	FT	NOM	FT	NOM	FT	NOM	FT
1	96.0	1106.0	1	96.9	1106.9	1	97.8	1107.8	1	98.6	1108.6	1	99.5	1109.5	1	99.5	1109.5	1	99.5	1109.5	1	99.5	1109.5	1	99.5	1109.5	1	98.7	1108.7	1	97.4	1107.4
2	96.1	1106.1	2	97.0	1107.0	2	97.8	1107.8	2	98.7	1108.7	2	99.5	1109.5	2	99.5	1109.5	2	99.5	1109.5	2	99.5	1109.5	2	99.5	1109.5	2	98.7	1108.7	2	97.3	1107.3
3	96.1	1106.1	3	97.0	1107.0	3	97.9	1107.9	3	98.7	1108.7	3	99.5	1109.5	3	99.5	1109.5	3	99.5	1109.5	3	99.5	1109.5	3	99.5	1109.5	3	98.6	1108.6	3	97.3	1107.3
4	96.1	1106.1	4	97.0	1107.0	4	97.9	1107.9	4	98.7	1108.7	4	99.5	1109.5	4	99.5	1109.5	4	99.5	1109.5	4	99.5	1109.5	4	99.5	1109.5	4	98.6	1108.6	4	97.2	1107.2
5	96.1	1106.1	5	97.0	1107.0	5	97.9	1107.9	5	98.8	1108.8	5	99.5	1109.5	5	99.5	1109.5	5	99.5	1109.5	5	99.5	1109.5	5	99.5	1109.5	5	98.6	1108.6	5	97.2	1107.2
6	96.2	1106.2	6	97.1	1107.1	6	97.9	1107.9	6	98.8	1108.8	6	99.5	1109.5	6	99.5	1109.5	6	99.5	1109.5	6	99.5	1109.5	6	99.5	1109.5	6	98.5	1108.5	6	97.1	1107.1
7	96.2	1106.2	7	97.1	1107.1	7	98.0	1108.0	7	98.8	1108.8	7	99.5	1109.5	7	99.5	1109.5	7	99.5	1109.5	7	99.5	1109.5	7	99.5	1109.5	7	98.5	1108.5	7	97.1	1107.1
8	96.2	1106.2	8	97.1	1107.1	8	98.0	1108.0	8	98.8	1108.8	8	99.5	1109.5	8	99.5	1109.5	8	99.5	1109.5	8	99.5	1109.5	8	99.5	1109.5	8	98.4	1108.4	8	97.1	1107.1
9	96.3	1106.3	9	97.2	1107.2	9	98.0	1108.0	9	98.9	1108.9	9	99.5	1109.5	9	99.5	1109.5	9	99.5	1109.5	9	99.5	1109.5	9	99.5	1109.5	9	98.4	1108.4	9	97.0	1107.0
10	96.3	1106.3	10	97.2	1107.2	10	98.1	1108.1	10	98.9	1108.9	10	99.5	1109.5	10	99.5	1109.5	10	99.5	1109.5	10	99.5	1109.5	10	99.5	1109.5	10	98.3	1108.3	10	97.0	1107.0
11	96.3	1106.3	11	97.2	1107.2	11	98.1	1108.1	11	98.9	1108.9	11	99.5	1109.5	11	99.5	1109.5	11	99.5	1109.5	11	99.5	1109.5	11	99.5	1109.5	11	98.3	1108.3	11	96.9	1106.9
12	96.4	1106.4	12	97.3	1107.3	12	98.1	1108.1	12	99.0	1109.0	12	99.5	1109.5	12	99.5	1109.5	12	99.5	1109.5	12	99.5	1109.5	12	99.5	1109.5	12	98.2	1108.2	12	96.9	1106.9
13	96.4	1106.4	13	97.3	1107.3	13	98.1	1108.1	13	99.0	1109.0	13	99.5	1109.5	13	99.5	1109.5	13	99.5	1109.5	13	99.5	1109.5	13	99.5	1109.5	13	98.2	1108.2	13	96.8	1106.8
14	96.4	1106.4	14	97.3	1107.3	14	98.2	1108.2	14	99.0	1109.0	14	99.5	1109.5	14	99.5	1109.5	14	99.5	1109.5	14	99.5	1109.5	14	99.5	1109.5	14	98.1	1108.1	14	96.8	1106.8
15	96.4	1106.4	15	97.3	1107.3	15	98.2	1108.2	15	99.1	1109.1	15	99.5	1109.5	15	99.5	1109.5	15	99.5	1109.5	15	99.5	1109.5	15	99.5	1109.5	15	98.1	1108.1	15	96.7	1106.7
16	96.5	1106.5	16	97.4	1107.4	16	98.2	1108.2	16	99.1	1109.1	16	99.5	1109.5	16	99.5	1109.5	16	99.5	1109.5	16	99.5	1109.5	16	99.5	1109.5	16	98.1	1108.1	16	96.7	1106.7
17	96.5	1106.5	17	97.4	1107.4	17	98.2	1108.2	17	99.1	1109.1	17	99.5	1109.5	17	99.5	1109.5	17	99.5	1109.5	17	99.5	1109.5	17	99.5	1109.5	17	99.4	1109.4	17	98.0	1108.0	17	96.6	1106.6
18	96.5	1106.5	18	97.4	1107.4	18	98.3	1108.3	18	99.1	1109.1	18	99.5	1109.5	18	99.5	1109.5	18	99.5	1109.5	18	99.5	1109.5	18	99.5	1109.5	18	99.4	1109.4	18	98.0	1108.0	18	96.6	1106.6
19	96.6	1106.6	19	97.5	1107.5	19	98.3	1108.3	19	99.2	1109.2	19	99.5	1109.5	19	99.5	1109.5	19	99.5	1109.5	19	99.5	1109.5	19	99.5	1109.5	19	99.3	1109.3	19	97.9	1107.9	19	96.6	1106.6
20	96.6	1106.6	20	97.5	1107.5	20	98.3	1108.3	20	99.2	1109.2	20	99.5	1109.5	20	99.5	1109.5	20	99.5	1109.5	20	99.5	1109.5	20	99.5	1109.5	20	99.3	1109.3	20	97.9	1107.9	20	96.5	1106.5
21	96.6	1106.6	21	97.5	1107.5	21	98.4	1108.4	21	99.2	1109.2	21	99.5	1109.5	21	99.5	1109.5	21	99.5	1109.5	21	99.5	1109.5	21	99.5	1109.5	21	99.2	1109.2	21	97.8	1107.8	21	96.5	1106.5
22	96.6	1106.6	22	97.5	1107.5	22	98.4	1108.4	22	99.3	1109.3	22	99.5	1109.5	22	99.5	1109.5	22	99.5	1109.5	22	99.5	1109.5	22	99.5	1109.5	22	99.2	1109.2	22	97.8	1107.8	22	96.4	1106.4
23	96.7	1106.7	23	97.6	1107.6	23	98.4	1108.4	23	99.3	1109.3	23	99.5	1109.5	23	99.5	1109.5	23	99.5	1109.5	23	99.5	1109.5	23	99.5	1109.5	23	99.1	1109.1	23	97.7	1107.7	23	96.4	1106.4
24	96.7	1106.7	24	97.6	1107.6	24	98.4	1108.4	24	99.3	1109.3	24	99.5	1109.5	24	99.5	1109.5	24	99.5	1109.5	24	99.5	1109.5	24	99.5	1109.5	24	99.1	1109.1	24	97.7	1107.7	24	96.3	1106.3
25	96.7	1106.7	25	97.6	1107.6	25	98.5	1108.5	25	99.4	1109.4	25	99.5	1109.5	25	99.5	1109.5	25	99.5	1109.5	25	99.5	1109.5	25	99.5	1109.5	25	99.1	1109.1	25	97.6	1107.6	25	96.3	1106.3
26	96.8	1106.8	26	97.7	1107.7	26	98.5	1108.5	26	99.4	1109.4	26	99.5	1109.5	26	99.5	1109.5	26	99.5	1109.5	26	99.5	1109.5	26	99.5	1109.5	26	99.0	1109.0	26	97.6	1107.6	26	96.2	1106.2
27	96.8	1106.8	27	97.7	1107.7	27	98.5	1108.5	27	99.4	1109.4	27	99.5	1109.5	27	99.5	1109.5	27	99.5	1109.5	27	99.5	1109.5	27	99.5	1109.5	27	99.0	1109.0	27	97.6	1107.6	27	96.2	1106.2
28	96.8	1106.8	28	97.7	1107.7	28	98.6	1108.6	28	99.4	1109.4	28	99.5	1109.5	28	99.5	1109.5	28	99.5	1109.5	28	99.5	1109.5	28	99.5	1109.5	28	98.9	1108.9	28	97.5	1107.5	28	96.1	1106.1
29	96.9	1106.9			29	98.6	1108.6	29	99.5	1109.5	29	99.5	1109.5	29	99.5	1109.5	29	99.5	1109.5	29	99.5	1109.5	29	99.5	1109.5	29	98.9	1108.9	29	97.5	1107.5	29	96.1	1106.1
30	96.9	1106.9			30	98.6	1108.6	30	99.5	1109.5	30	99.5	1109.5	30	99.5	1109.5	30	99.5	1109.5	30	99.5	1109.5	30	99.5	1109.5	30	98.8	1108.8	30	97.4	1107.4	30	96.1	1106.1
31	96.9	1106.9			31	98.6	1108.6				31	99.5	1109.5			31	99.5	1109.5			31	98.8	1108.8					31	96.0	1106.0

Nominal = GAUGE
FEET = ELEVATION